
ENVIRONMENTAL Fact Sheet



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Global Climate Change and Its Impact on New Hampshire Cold Water Fishing

Possible Decline or Elimination of Cold Water Fish

Recent studies conducted for potential climate change impacts to cold-water fishing have predicted that, should New Hampshire's average annual temperatures increase, coldwater fish such as brook, rainbow and brown trout may not be able to survive. Cold water fishing may end or be greatly reduced.



What is Climate Change?

Life on earth is possible because the sun's energy warms the earth and its atmosphere. As this warmth radiates back into space, a portion is absorbed by a delicate balance of heat-trapping gases in the atmosphere, creating an insulating layer. The insulating layer, functioning much as a conventional greenhouse does, acts to elevate temperatures on earth. This "greenhouse effect" is a necessary natural global mechanism. Without it the earth's climate would be hostile to human life. Human contributions to greenhouse gases (GHG) have led to an "enhanced greenhouse effect," often referred to as climate change or global warming. Today's atmospheric concentrations of carbon dioxide (CO₂), the primary GHG, are 30 percent above the pre-industrial levels of 200 years ago. At present rates, they may double as early as 2050.

Potential Impacts on New Hampshire Cold Water Fishing

The temperatures of streams in New Hampshire may increase to levels exceeding tolerances for most coldwater fish such as brook, brown and rainbow trout.

A study by EPA for New England indicated that some states could potentially lose all habitat important for coldwater fish. Estimates as high as a 50 percent loss were predicted for northern New Hampshire.

Droughts accompanying climate change cause lower water levels and reduced stream flows, leading to reduced food availability. Coldwater fish are also prevented from migrating to spawning grounds.

Temperature is critical to reproduction in many coldwater fish species. Even though some adult fish may tolerate higher stream temperatures, they will not reproduce.

Climate change may affect stream flow rates by increasing incidences of spring flooding and very low flow rates in late fall. Low water levels decrease availability of winter habitat, lessen

reproduction, reduce food availability, as well as suffocate and desiccate fish eggs. Flooding scours stream bottoms of fish eggs.

Warm water fish may have difficulty moving into vacated coldwater fish habitat because they are unable to tolerate fast stream rates.

Fishing in New England is big business. Two million fishermen in 1991 spent an average of \$674 per person annually. Thirty-five percent of those traveled to New England from out-of-state. Revenue loss from lost coldwater fishing would be significant.

For More Information

For more information on climate change, its impacts on New Hampshire's fishing and other resources, visit www.des.nh.gov or contact DES Air Resources Division at (603) 271-1370.